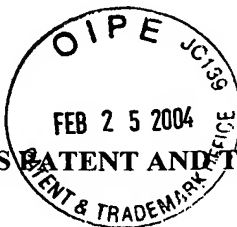


Docket No. 245934US2TTCRD/mtm



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Mizunori EZAKI, et al.

SERIAL NO: 10/720,515

GAU:

FILED: November 25, 2003

EXAMINER:

FOR: A VERTICAL-CAVITY SURFACE EMITTING LASER DIODE AND ITS MANUFACTURING METHOD

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

  
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Docket No. 245934US2TTCRD



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Respectfully submitted,

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I:\USER\DNFRA\24\5\245934 IDS RELATED.DOC



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF:

Mizunori EZAKI, et al.

SERIAL NO: 10/720,515

GROUP:

FILED: November 25, 2003

EXAMINER:

FOR: A VERTICAL-CAVITY SURFACE EMITTING LASER DIODE AND ITS  
MANUFACTURING METHOD

**STATEMENT OF RELEVANCY**

**Reference AA (US 5,493,577) on Form PTO-1449:**

This discloses to semiconductor light-emitting devices having a resonant cavity structure in a direction normal to the plane of an active region, and method for fabrication thereof. The device is provided with at least one control layer or control region which includes an annular oxidized portion with asymmetric shape to channel an injection current to the active region, and to provide a lateral refractive index profiles and a preferred direction of polarization for the light generated within the devices.

**Reference AO (JP 11-112084) on Form PTO-1449:**

This relates to a method for fabricating selectively oxidized vertical cavity surface lasers (VCSEL) devices. The shape and size of the oxide-aperture for current confinement can be controlled by forming the lateral oxidation stop layer pattern.

**Reference AP (JP 9-266350) on Form PTO-1449:**

This relates to a method for fabricating selectively oxidized vertical cavity surface lasers (VCSEL) devices. The lateral oxidation extent can be controlled by forming the film pattern with a suitable stress on the surface of mesa-structure in the devices.

Form PTO 1449  
(Modified)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

245934US2TTCRD

SERIAL NO.

10/720,515

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Mizunori EZAKI, et al.

FILING DATE

November 25, 2003

GROUP

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	5,493,577	02/20/1996	K.D. CHOQUETTE et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	11-112084	04/23/1999	JAPAN		X
	AP	9-266350	10/07/1997	JAPAN		X
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

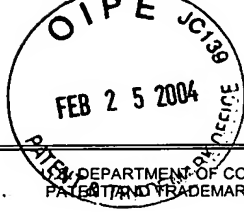
	AW	
	AX	
	AY	
	AZ	

☐ Additional References sheet(s) attached

Examiner

Date Considered

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO 1449  
(Modified)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY DOCKET NO.  
245934US2TTCRDSERIAL NO.  
10/720,515

## LIST OF REFERENCES CITED BY APPLICANT

APPLICANT  
Mizunori EZAKI, et al.FILING DATE  
November 25, 2003

GROUP

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	6,678,307	01-2004	EZAKI ET AL.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO					
	AP					
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	

☐ Additional References sheet(s) attached

Examiner

Date Considered

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



**LIST OF RELATED CASES**

<u>Docket Number</u>	<u>Serial or Patent Number</u>	<u>Filing or Issue Date</u>	<u>Inventor/ Applicant</u>
228850US2 SRD	6,678,307	01/13/04	EZAKI et al.
245934US2 TTCRD*	10/720,515	11/25/03	EZAKI et al.

\*Present Application; listed for information

EHK/gyy

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